UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Reply To
Attn Of: ECL-111

February 24, 2005

MEMORANDUM

Subject: Final Closeout Report for Soils at South Tacoma Field, Operable Unit 3 of South Tacoma Channel Superfund Site.

From: Daniel D. Opalski, Director *s/s Sheila M. Eckman for Opalski*
Environmental Cleanup Office

To: Site File - Commencement Bay South Tacoma Channel - South Tacoma Field (TSWSF Section 22)

Through: Lori Cohen, Associate Director *s/s Sheila M. Eckman for Cohen*
Environmental Cleanup Office

Sheila M. Eckman, Unit Manager *s/s Sheila Eckman*
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Attached to this memorandum is the Final Closeout Report for Soils which supports EPA Region 10's decision to propose partial deletion of the soils portion of the South Tacoma Field (STF) from the National Priorities List (NPL). The attached Final Closeout Report for Soils meets the substantive requirements of EPA's Final Guidance on Close-Out Procedures for National Priorities List Sites (EPA, 2000). The completion criteria that must be met in order to delete a site or any portion of it from the NPL are listed below, along with brief statements explaining how the criteria are met pertaining to the soil remedies at South Tacoma Field.

- Cleanup goals specified in the Record of Decision (ROD) or subsequent decision documents (e.g., ROD amendments, Explanations of Significant Difference) are met.
  -The Remedial Action Report (EPA 2000) and Preliminary Closeout Report (EPA 1999a) document the removal, consolidation and capping of contaminated soils that occurred during remedial action and how those actions comply with the cleanup goals specified in the ROD (EPA 1994).
  -There were no ROD amendments or ESDs applicable to STF soils.
- Institutional controls are in place.
  -Legal descriptions of parcels that are limited for use are attached to the

final CERCLA Consent Decree per requirements of that CD and use restrictions in the form of restrictive covenants are on-file with the Pierce County Assessor's Office

-The Site Development and Institutional Controls Plan (Kennedy/Jenks 2000) required by the ROD clearly shows where contamination

-has been capped and/or consolidated, or

-remains in place meeting State requirements for acceptable human health exposure for industrial use/development.

-First Five Year Review Report (EPA 2003) summarizes EPA's review of the title/use restrictions and evaluates the effectiveness of the Site Development and Institutional Controls Plan.

- All remedial action reports have been completed.

  -In addition to above-referenced reports, a certificate of completion was issued for the soils portion of this site in September 2003.

- The site is protective of human health and the environment.

  -The First Five Year Review Report concludes that the soils remedy at STF is protective of human health and the environment (EPA 2003.)

- Remaining activities, if any, are operation and maintenance activities that are performed by the State or responsible parties.

  -Under the final Consent Decree and subsequent Site Development & Institutional Controls Plan (Kennedy/Jenks 2000) PRPs are responsible for continued monitoring and maintenance to preserve integrity and protectiveness of the soil remedies; although in certain circumstances, EPA may reduce the monitoring requirements (e.g., where additional cap is added for slab foundations for commercial/industrial buildings, paving, etc.).

  -In the case of STF, the State is not responsible for operation and maintenance or other remaining activities.

Removal of the STF soils unit from the NPL is warranted for several reasons. First and foremost, remedial action is complete and meets the criteria for deletion. Second, several entities are interested in developing the Site for commercial/industrial purposes and deletion may speed up redevelopment. Thus, deletion will also support Superfund initiatives for land revitalization and redevelopment. After construction of the soil remedy was complete in 1999, the level of development interest in this site ranged from phone calls with the Remedial Project Manager, to interested parties investigating the site file and meeting with the Remedial Project Manager to answer questions about the site. In 2003/2004, Burlington Northern's Property and Economic Development Divisions began actively marketing the site, increasing the number of calls and questions concerning industrial/commercial development of the site itself, as well as generating some calls regarding the residentially-zoned area on a ridge above and directly west of the site.

Parties inquiring about the site consistently express concern regarding the "Superfund stigma" associated with the fact that the site remains on the NPL, making it difficult to obtain financing for development of the site. Deleting soils at the site will stimulate development of

the property as well as provide a boost to the local economy. The First Five Year Review Report (June 2003), demonstrated that the implemented remedial actions is protective of human health and the environment, and meets EPA criteria for completion and deletion. Partial deletion of the site's soils will not affect any requirements of the CERCLA Consent Decree (EPA 1997) or subsequent Site Development and Institutional Controls Plan (Kennedy/Jenks 2000). Partial deletion will not affect any use restrictions, restrictive covenants and leases, access agreements or other limits on land use at the site, nor will it affect the status of STF on any State lists such as the Contaminated Sites List. EPA will continue to perform Five Year Reviews as well, since waste remains on-site.

The attached Final Closeout Report for Soils at STF provides additional detail about how the criteria for NPL deletion are met, along with a history of the site, its regulation and cleanup, and development status. Questions regarding the attached may be addressed to Kris Flint, Remedial Project Manager for the South Tacoma Field Operable Unit at (206)553-8155.

Attachment:

Final Closeout Report for Soils on the South Tacoma Field OU of South Tacoma Channel Site

COMMENCEMENT BAY, SOUTH TACOMA CHANNEL SUPERFUND SITE

SOUTH TACOMA FIELD OPERABLE UNIT

Final Closeout Report for Soils

Prepared by
Region 10
United States Environmental Protection Agency

Approved By: Date:

s/s Sheila M. Eckman *February 24, 2005*

Daniel D. Opalski, Director
Environmental Cleanup Office

SCOPE OF DOCUMENT

This document supports EPA Region 10's decision to delete the surface soils of the South Tacoma Field (STF) operable unit of the Commencement Bay - South Tacoma Channel Superfund Site from the National Priorities List (NPL). This document and the proposed decision to partially delete pertain **only** to soils and not to residual groundwater contamination at the site. For the purpose of this document, "soils" means all of the surface soils within the perimeters of the STF (see Figure 1).

In supporting the decision for partial deletion of soils, this document demonstrates how the remedies at STF meet EPA criteria for site completion (EPA 2000) that are relevant to the site soils. EPA's criteria are:

- Cleanup goals specified in all Records of Decision (ROD) or removals are met;
- Institutional controls are in place;
- All Remedial Action (RA) Reports have been completed;
- All RODs, ROD Amendments, and Explanation of Significant Differences (ESDs) have been completed;
- The site is protective of human health and the environment; and
- The only remaining activities, if any, at the site are operation and maintenance activities that are performed by the State, Federal Facility, or responsible parties.

This document also provides a history of the site and contamination as context for the explanation of how the soils remedies meet EPA's criteria for remedy completion and deletion from the NPL.

SUPERFUND HISTORY

In 1981 the Commencement Bay site was listed on the National Priorities List. In a Record of Decision (ROD) dated September 8, 1983, the Agency divided the Commencement Bay into two distinct sites, South Tacoma Channel and Commencement Bay Nearshore/Tideflats site. The South Tacoma Channel site consists of three operable units; STF, Well 12A, and Tacoma Municipal Landfill. The table below briefly summarizes key events and documents related to soils on the STF. Attached Figure 1 shows the general location of the STF relative to Commencement Bay and the City of Tacoma, Washington.

Date	Event
September 1994	[illegible]
[illegible]	[illegible]

Date	Event
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

SITE BACKGROUND

Location & Use

The site is located in Tacoma, Pierce County, Washington, and is located from approximately South 36th Street on the north, South 56th Street on the south, Tyler Way on the west, and Adams Street on the east. The STF site is approximately 260 acres that have been used for a variety of industrial and commercial purposes for more than 100 years. The area is lower than surrounding upland areas by as much as 150 feet on the west. Currently, the site is mostly a grassed, open field with a few industrial and commercial facilities. The site includes a former swamp and lake bed that has been filled and covered with grass over time. There is a small wetland in this area, along with an open stormwater channel along the west and north sides of the site.

The site is currently zoned for commercial/industrial use with the exception of an 18 acre strip along the western border which is zoned for residential-commercial transitional use. The western side of the STF, generally in the area of the old airport, is also used for casual recreation (e.g., biking, dog-walking, flying model airplanes). Businesses operating on the southern half of the STF include Pioneer Builders Supply, General Plastics, and Industrial Properties which leases warehouse, office, and yard space to businesses.

Contamination History

A variety of industrial and commercial operations have occupied different portions of the site in the past 100 years. The South Tacoma Car Shops area operated as a railroad manufacturing and repair facility

from 1892 to 1974. The area was used for manufacturing, repair, and maintenance of railroad equipment. Rail cars were also cleaned and dismantled. Foundry facilities operated on-site from 1890 through 1980. An iron foundry produced iron wheels until 1957. A brass foundry produced journal bearings composed primarily of lead, tin, copper, zinc and antimony until 1980. Aircraft maintenance and refueling operations were performed at the South Tacoma Airport from 1936 to 1973. A lake was located beyond the south end of the former runway and, in the late 1940's, was used by seaplanes. In addition, foundry, construction, and domestic wastes reportedly were disposed of as fill material in the Former Swamp/Lake bed area. In the 1930s and 1940s portions of the site reportedly were used as unauthorized dumping areas for household and commercial wastes. Figure 2 shows the STF site with the general areas of historic ownership and activity.

During the remedial investigation (RI) contamination was identified in the former railroad maintenance area, at the Tacoma Public Utilities area, and at the Pioneer Builders Supply. Pioneer used two underground storage tanks (USTs) for about five years to store gasoline and diesel fuel. During tank excavation in 1991, petroleum contamination was discovered in surrounding soils. Also, in 1990 three other tanks were uncovered and removed.

The Preliminary Closeout Report (Long-Term Remedial Action), prepared and issued by EPA in September 1999, contains a detailed summary of what types of contamination were found at various concentrations and locations across the site. Surface soils and, to a lesser extent, subsurface soils in the railyard and foundry areas were contaminated with high levels of lead, arsenic, copper and zinc. Metal concentrations in surface soils samples from the former swamp/lakebed area were found to be elevated, but to a lesser degree than the more active industrial areas. In the foundry area, hydrocarbon contamination was found in groundwater. In addition, elevated concentrations of PAHs, PCBs and several other organics were detected in subsurface soils at and underlying some of the dry wells at the Tacoma City Light Property.

At Pioneer Builders Supply, 1,2,4-trichlorobenzene, ethylbenzene, and benzene were detected above maximum contaminant levels (MCLs) in groundwater. PCBs, benzene, toluene, ethylbenzene and xylenes were detected in subsurface soil in the unsaturated zone beneath and immediately surrounding the location of three USTs.

REMEDIAL ACTIONS

Remedy Selection for Contaminated Soils

The ROD for the STF site was signed September 29, 1994, and the remedies selected for each portion of the site addressed human health risks from exposure to contamination via soil ingestion or contact. The protectiveness of selected active remedies for soils (e.g., elimination and reduction of risk through excavation, removal, and or capping) is supplemented with institutional controls limiting future land use to commercial/industrial. No ROD amendments were warranted for soil remediation. On January 14, 1997, the final Consent Decree (CD) was filed and bound the settling defendants to select a supervising contractor and perform the remedies selected in the ROD. The defendants (Burlington Northern Railroad Company, Amsted Insustries Inc., Pioneer Builders Supply Inc., South Tacoma Limited Liability Company, Atlas Foundry and Machine Company (Division of TIC United Corporation), and the City of Tacoma Department of Public Utilities Light Division) selected Kennedy/Jenks to perform the selected remedies pursuant to requirements of the Consent Decree and attached Statement of Work. The CD requirements include further sampling for remedial design, actual cleanup and confirmational sampling, implementing institutional controls, and a long-term maintenance and monitoring program.

Cleanup Objectives for Soils

EPA's ROD listed the following primary cleanup objectives for soils:

- Excavate soil hot spots and treat on-site using solidification.
- Cap soils where contaminant concentrations exceeded the State's Model Toxics Control Act (MTCA) criteria for industrial use.
- Limit site use, and thus human exposure, strictly to industrial where contaminant concentrations ranged between the MTCA criteria for industrial and residential uses.
- Where the site was zoned for residential/commercial use and contaminant concentrations exceeded the MTCA criteria for residential use, soils were to be cleaned up as prescribed in MTCA.

Section 6 of EPA's ROD summarizes a human health risk assessment (HHRA) conducted for this site during the RI/FS. The HHRA evaluated risks due to contamination in the soil as well as in groundwater, surface water and stormwater ditch. The routes of soil exposure considered in the HHRA included ingestion and skin contact for scenarios of industrial, residential and recreational use (see Location & Use, above). The HHRA concluded that cleanup of the STF was necessary to prevent imminent and substantial endangerment to public health from actual or threatened releases of hazardous substances.

The numeric bases for different levels of action selected in the ROD for surface and sub-surface soil contamination are outlined below.

- Soil 'hotspots' were defined as areas with contamination exceeding levels shown below. These soils were to be excavated and treated (stabilization) and consolidated on-site. Areas of consolidated wastes were to be capped either with asphalt or one-foot of clean soil. 'Hotspots' were defined as exceeding the concentrations shown below.

Arsenic	570 mg/kg
Lead	18,000 mg/kg
Carcinogenic PAHs	50 mg/kg
Total PCBs	50 mg/kg
Copper	45,000 mg/kg

- Soils with concentrations of the chemicals shown below determined areas where capping was the selected remedy. Soils with contamination between the 'hotspot' definition and the capping levels were to be excavated, consolidated and capped.

Arsenic	200 mg/kg
Lead	1,000 mg/kg
Carcinogenic PAHs	20 mg/kg
Total PCBs	10 mg/kg

- At the Tacoma City Light portion of STF (north end, see Figure 2), soils with PCBs above 50 parts per million were to be excavated and transported off-site for appropriate disposal.

- Soils with contamination concentrations below the capping levels in the ROD but above the residential standards (Washington Model Toxics Control Act (MTCA)), were to be controlled by limiting future land use with a program of institutional controls, including use restrictions and an educational program for the public. (Note these institutional controls were later detailed in the Site Development and Institutional Control Program (Kennedy/Jenks 2000).)

During the Feasibility Study (FS) and prior to issuing the ROD, a groundwater study confirmed that inorganic metals leaching from contaminated soils did not pose a threat to groundwater. Total lead was chosen as the indicator chemical in this study due the high volume and concentrations of lead-contaminated soil at the site. Consequently, lead concentrations in groundwater continues to be monitored at locations across the site, particularly where contaminated soils are consolidated. No increase has been found.

Remedy Implementation for Soils

Tacoma City Light was the party responsible for PCB-contaminated dry wells at the north end of the STF. Tacoma City Light initiated this cleanup in August 1997 and completed cleanup in January 1998, prior the beginning of remedial action on the balance of the site in June 1998. Tacoma City Light determined their primary cleanup objective for the dry wells was to remove all contaminated soils exceeding MTCA concentrations for or residential use, thereby performing a more aggressive cleanup than was selected in the ROD for the balance of the site. City Light excavated soils with PCB concentrations above 1 mg/kg and endrin concentrations above 0.13 mg/kg and transported them off-site for incineration.

The balance of RA activities at the STF site began in June 1998. The following work was conducted in accordance with the ROD and the CERCLA Consent Decree. See Figure 3 for locations of capped and consolidated materials.

- Approximately 6,300 tons of soil exceeding hot-spot concentrations were excavated and treated (i.e., stabilized with a phosphate-based reagent). These soils were consolidated on-site and covered with a clean soil cap at the north end of the site. (See Figure 3)

- At Pioneer Builders Supply 15.4 tons of soil with PCBs exceeding 50 mg/kg were excavated and disposed of off-site.

- 113,607 tons of soil with contaminant concentrations between the capping and hot-spot concentrations were consolidated and capped.

- An estimated 13.7 acres of the STF was capped (approximately 5% of 260 total acres).

- Buried tanks, drums and contents were removed and disposed. Associated contaminated soils and solid wastes were also removed and disposed at a permitted facility.

- Sub-surface soils contaminated over capping concentrations were capped where excavation and consolidation were not cost-effective and became subject to institutional control.

- Institutional controls prohibiting residential development and limiting exposure were installed (e.g., drinking water restrictions, vegetation planting/maintenance on caps, fencing, grid markers for surveying integrity of capped areas over time, future development limitations to protect and/or supplement capped areas).

- During construction, air was monitored to assess airborne contaminant concentrations in the work area and at site boundaries.

Only three minor deviations from the ROD and approved Remedial Design (RD) occurred. First, the RD called for portland cement as a stabilizing agent, instead, a proprietary phosphate-based reagent was used to render metal contaminants stable and insoluble. Second, because the RD assumed portland cement as the stabilizer, a retaining wall and stormwater drainage were designed for the Amsted property (see Figure 2). However, the volume of soil needing treatment was smaller than expected and since cement was not used, the retaining wall and associated stormwater drainage were unnecessary. Third, all excavated soil was not fully replaced because near-term development and additional backfill was expected. A minimum of six inches of topsoil was placed over all soils requiring a cap, other soils received twelve inches of cap or asphalt cover.
Some small areas of contamination at concentrations exceeding capping levels could not be excavated because they fell beneath active rail lines. Any development planned for the rail line or its right-of-way are subject to the institutional controls in the Site Development and Insitutional Controls Plan (SDICP) (e.g., characterization sampling, appropriate worker training and protection for handling contaminated soils, disposition of contaminated materials). The SDICP, which is discussd at the end of this report, also provides specific details about soil contamination remaining below remedial excavation depths including the concentration of contaminant and depth below ground surface at the end of remedial action.

QUALITY ASSURANCE & CONTROL for SAMPLING & DATA

Activities at the site were consistent with the ROD and all work plans issued to contractors for design and construction of the RA, including sampling and analysis. The Quality Assurance Project Plans incorporated all EPA quality assurance and quality control (QA/QC) procedures and protocol. EPA analytical methods were used for all validation and monitoring samples during RA activities. Sampling for soil, sediment and water followed relevant EPA protocols and the RA reports contain documentation of sampling results. In addition to PRP data validation, EPA split verification samples taken during the soil excavation work in the rail yard and foundry areas in order to validate approximately 10% of the data.

EPA is satisfied that the combined QA/QC programs resulted in conformance with EPA standards; and thus determined that all analytical results were accurate to the degree needed to assure satisfactory execution of the RA and are consistent with the ROD and the remedial design plans and specifications. (EPA, 1999a)

ONGOING OPERATION AND MAINTENANCE

The 1997 Consent Decree requires PRPs to perform inspections and necessary actions for long-term operation and maintenance (O&M) of the remedy. In the first annual O&M report (2000) a number of issues were identified for further monitoring and/or resolution. Problems included minor settling of caps, stormwater ponding, erosion, and dead vegetation in areas where public had vehicle access to capped area (cap was 1.5 ft thick, vehicle ruts were approximately 6 inches deep). Over the course of the first year, one small cap area was re-graded to address settling and associated drainage problems. Two other capped areas where vegetation had died were prepped, successfully re-seeded and temporarily fenced to protect the new vegetation. Since the first year, maintenance has consisted of re-locating grid markers, replacing lost marker tags, monitoring public access areas for erosion, maintaining fences/gates, and monitoring/replacing vegetation to prevent wind/water erosion. Semi-annual monitoring has been effective in preserving the integrity of capped areas and consolidated/capped areas of the site.

Settling defendants are responsible under the CD for continuing both O&M and institutional control work after soils are partially deleted; although, the CD does allow EPA to reduce O&M requirements if future development warrants. For example, when fill is added to a capped area to provide a level foundation for building slabs, EPA may determine it is no longer necessary to monitor vegetation and erosion for that location.

SUMMARY OF SOIL REMEDIATION COSTS

The original cost estimate to implement the entire RA described in the ROD was $17.3 million. Of that, $14 million was for soils in the railyard and foundry areas. Maintenance of the soil remedy was estimated at $1.7 million. The PRPs performed the work and have not provided updates on the actual costs for remedial action or for operation and maintenance.

The ROD also estimated that PCB-contaminated soils in the City Light dry wells would cost $179,000 to cleanup. According to the City's environmental project manager the work cost approximately $180,000.

FIVE YEAR REVIEW REPORT - FINDINGS

The first Five-Year Review Report for this site was issued in June 2003, for the purpose of determining whether the implemented remedies continue to protect human health and the environment and/or whether additional protective measures are needed. The process for conducting Five-Year Reviews includes site inspections, document reviews (e.g., use restrictions, access agreements, construction reports), collecting additional data, and involving the community (e.g., public notices). The First Five Year Review Report for STF found that remedial action objectives for soil cleanup had been met and that the soil remedies were protective of human health.

The Five-Year Review process requires answers to three key questions which are summarized below along with the findings relevant to the soil remedies at STF. (EPA 2003)

Question: Is the remedy functioning as intended by the decision documents? Yes, the selected remedy for contaminated soils (clean capping) is working and meets the goals specified in the ROD. Institutional controls are in place and effective as evidenced by frequent inquiries from developers interested in various portions of the site. Consolidation of "hot-spot" contamination with thick cap coverage is protective and will remain so as long as commitments to the integrity of caps and fences are kept. General groundwater monitoring associated with soil contamination or consolidation shows no change has occurred and inorganic metals, based on the indicator of total lead, is not posing a threat to groundwater.

Question: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid? Yes, the assumptions, data, cleanup levels and cleanup objectives used at the time of the remedies are still valid. Although Washington Department of Ecology modified MTCA substantially in 2001, the modifications to the industrial standards do not affect the protectiveness of the soil remedies prescribed in the 1994 ROD.

Question: Has any other information come to light that could call into question the protectiveness of human health and the environment? No, the remedy at STF currently protects human health and the environment. The remedies for soil and general groundwater protection are protective of human health and the environment in both short and long term.

The second Five-Year Review Report for STF is scheduled for 2008 when Region 10 will once again

address these questions.

COMMUNITY INVOLVEMENT

Since the remedy was completed in 1999, the public has not demonstrated particular interest in the site except for questions related to commercial/industrial development (see below). For issuance of the First Five-Year Review Report, Region 10 published a notice for conducting the review in the *Tacoma News Tribune* (February 24, 2003) and sent approximately 215 notices to addressees on the public mailing list for this site. Only one citizen responded by calling to learn more about the soil remedy based on concerns about eating wild blackberries from, and walking dogs on, unoccupied portions of the site. Staff from the Tacoma-Pierce County Health Department (TPCHD) and Washington Department of Ecology also contacted Region 10 with technical input for the review. A second notice to the community was mailed at the end of the Five-Year Review process with notification that the remedies are still protective.

This document will be posted to the Region 10 EPA web-page in preparation for issuing a Notice of Intent to Partially Delete the soils portion of the site. When the Notice of Intention is published in the Federal Register, public notice will also be published in the Tacoma News Tribune and individual notices will be sent to the mailing list for the site.

SITE DEVELOPMENT and INSTITUTIONAL CONTROLS PLAN

After remedial actions were completed in 1999, EPA approved the Site Development and Institutional Controls Plan (SDICP) (Kennedy Jenks, 2000) which was developed in accordance with the final CERCLA Consent Decree. The SDICP requires parties interested in developing portions of the site to contact EPA for concurrence with those plans. Since 1999, EPA has entertained several inquiries related to different types of development on portions of the site. The level of interest shown for this site has ranged from phone calls with the Remedial Project Manager, to interested parties investigating the site file and meeting with the Remedial Project Manager to answer questions about the site. Burlington Northern began to actively market the site in 2003/2004, thus increasing the number of calls and questions EPA received about industrial/commercial development on the site. As standard procedure, EPA's role in these interactions is to:

- encourage interested parties to obtain and read a copy of the SDICP,
- answer questions via phone or email,
- provide oral history of the site, explaining the Superfund process in general and the SDICP in particular,
- assist parties reviewing the EPA site file (appointments, questions/answers), and
- address written development proposals as provided by interested parties.

One particular figure from the SDICP, included in this report as Figure 3, is a critical reference because it shows the levels of contamination that may be encountered during development which dictate which institutional controls and best management practices for construction/development would apply for a given proposal. Although Figure 3 is color-coded and labeled "Capping Levels", it visually highlights four levels of planning and consideration that must be given to different locations on the site, depending on the original level of soil contamination and cleanup provided. With reference to earlier discussion of soil cleanup objectives, the four general categories of existing soil conditions shown on Figure 3 are:

- Where soils meet residential cleanup levels. White grids were not contaminated above

residential levels. Brown[1] grids show where subsurface soil contamination exists above residential levels and grid is covered with minimum 6" cap of clean material and vegetation.

-No special health and safety precautions are warranted.

-No special requirements apply for the disposal of soils.

-Coordination/review of development plan with EPA is not required. (Note none of the brown grids on Figure 3 fall within area zoned for residential use discussed in the "Location & Use" section of this report.)

- Where soil concentrations of certain chemicals are above residential cleanup levels but below capping levels and are appropriate for industrial use. Yellow grids were not remediated and would require additional cleanup for any sort of residential use. Green grids were remediated and covered with a minimum 6" cap of clean material and vegetation.

  -Routine health & safety precautions are required such as: cleaning equipment/tools before leaving site; washing hands/face after working with soil; and, no eating, smoking, drinking while working.

  -Soils may only be disposed of in a permitted facility.

  - Although a development plan is recommended, coordination/review with EPA is not required.

- Blue grids are where sub-surface soil concentrations exceed capping levels and are covered with a minimum 12" clean soil (cap) or asphalt (cover). These grids are where contaminated soil excavated from other grids were consolidated. The treated "hotspot" contamination is also located in a blue grid and the stabilized contamination is also covered with geotextile fabric.

  -As long as the caps and covers on these grids are maintained and incorporated into future development, there is no significant human health risk from casual contact with surface soils.

  -A development plan is required and must be coordinated/reviewed by EPA.

  -Additional preparation must be made for development involving these grids, including sampling and analyses to determine the appropriate handling and disposition of any soils removed from the area.

  -Confirmation sampling should be planned to describe any contamination that may be left in place after development is complete.

  -Workers must meet State health & safety requirements.

  -Soils may only be disposed of in a permitted facility.

- Purple grids are where soil concentrations exceeding capping levels were not remediated for safety or operational reasons. These grids are directly beneath the railway or within its right-of-way.

  -A development plan is required and must be coordinated/reviewed by EPA

  -Additional preparation must be made for development involving these grids, including sampling and analyses to determine the

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[1] Due to differences in printing and scanning equipment, these grids may appear as red rather than brown.

appropriate handling and disposition of any soils removed from the area.

-Confirmation sampling should be planned to describe any contamination that may be left in place after development is complete.

-Workers must meet State health & safety requirements

-Soils may only be disposed of in a permitted facility

Since soil RA has been completed, the focus of STF site management is assuring potential developers understand the SDICP and how institutional controls may affect their plans. Section 3 of the SDICP highlights and clearly explains how the limitations and requirements associated with developing any portion of the STF will work, in terms of dealing with any remaining soil contamination, transferring property, allowing access, etc.. Some redevelopment has already occurred and new development inquiries continue, indicating that institutional controls are working and will allow redevelopment in a manner that protects both the soil remedies and human health. Thus, the STF soils remedy meets EPA's criteria for site completion and enables removing STF soils from the NPL.

CONCLUSION

The completion criteria that must be met in order to delete a site or any portion of it from the NPL are listed below, along with brief statements explaining how the criteria are met pertaining to the soil remedies at South Tacoma Field.

- Cleanup goals specified in the Record of Decision (ROD) are met

  -There were no ROD amendments or ESDs applicable to STF soils

  -The Remedial Action Report (EPA 2000) and Preliminary Closeout Report (EPA 1999a) document the removal, consolidation and capping that occurred during remedial action and how those actions comply with the cleanup levels and objectives established in the ROD

  -See sections of this document regarding Cleanup Objectives and the Site Development & Institutional Controls Plan.

- Institutional controls are in place.

  -Legal descriptions of parcels that are limited for use are attached to the final CERCLA Consent Decree per requirements of that CD and use restrictions are filed with the Pierce County Assessor's Office.

  -The Site Development and Institutional Controls Plan (Kennedy/Jenks 2000) clearly shows where contamination has been consolidated or capped or remains in place and meets State requirements for acceptable human health exposure for industrial use/development. Following this plan by current and future property owners is a requirement of the Consent Decree and is enforced by EPA.

  -First Five Year Review Report (EPA 2003) summarizes EPA's review of the title/use restrictions and evaluates the effectiveness of the Site Development and Institutional Controls Plan and no deficiencies were noted.

- All remedial action reports relevant to STF soils have been completed.

  -In addition to reports referenced throughout this document, EPA issues a certificate of completion for the soils portion of the site on September 3, 2003 (EPA 2003b).

- The site is protective of human health and the environment
- Remaining activities, if any, are operation and maintenance activities that are performed by responsible parties.

-The First Five Year Review Report concludes that the soils remedy at STF is protective of human health and the environment (EPA 2003)

-The final Consent Decree with responsible parties and subsequent Site Development & Institutional Controls Plan (Kennedy/Jenks 2000) mandates that soil remedies be monitored for integrity (e.g., fencing, vegetation, erosion, stormwater ponding) and describes circumstances where EPA may reduce these monitoring requirements (e.g, additional fill brought in to establish new grade for development and is paved or built over).

-It is important to note that, for the STF, the State is not responsible for operation and maintenance or other remaining activities under the Consent Decree.

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